

## **REMARKS**

This paper is presented in response to the Office Action. Claims 1, 4, 8, 10-13, 17, 19-20 and 31 were previously canceled. Claims 2-3, 5-7, 9, 14-16, 18, 21-30 and 32-34 remain pending in view of the aforementioned cancellations.

Reconsideration of the application is respectfully requested in view of the following remarks. For the convenience and reference of the Examiner, the remarks of the Applicant are presented in the order in which the corresponding issues were raised in the Office Action.

### **I. General Considerations**

Applicant notes that the remarks and amendments presented herein have been made merely to clarify the claimed embodiments from elements purported by the Examiner to be taught by the cited references. Such remarks, or a lack of remarks, and amendments are not intended to constitute, and should not be construed as, an acquiescence, on the part of the Applicant: as to the purported teachings or prior art status of the cited references; as to the characterization of the cited references advanced by the Examiner; or as to any other assertions, allegations or characterizations made by the Examiner at any time in this case. Applicant reserves the right to challenge the purported teaching and prior art status of the cited references at any appropriate time.

In addition, the remarks herein do not constitute, nor are they intended to be, an exhaustive enumeration of the distinctions between any cited references and the claimed invention. Rather, the distinctions identified and discussed herein are presented solely by way of example. Consistent with the foregoing, the discussion herein is not intended, and should not be construed, to prejudice or foreclose contemporaneous or future consideration, by the Applicant,

of additional or alternative distinctions between the claims of the present application and the references cited by the Examiner, and/or the merits of additional or alternative arguments.

## **II. Rejection of Claims Under 35 U.S.C. § 103(a)**

Applicant respectfully notes at the outset that in order to establish a *prima facie* case of obviousness, it is the burden of the Examiner to demonstrate that three criteria are met: first, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success; and third, the prior art reference (or references when combined) must teach or suggest all the claim limitations. *MPEP* § 2143.

### **A. Rejection of Claims 21-25 and 27-28**

The Examiner has rejected claims 21-25 and 27-28 as being unpatentable over US 6,526,122 to Ouchi ("*Ouchi*") in view of US 6,567,448 to Sun et al. ("*Sun*"). Applicant disagrees and submits that for at least the reasons set forth herein, the rejection should be withdrawn.

In his rejection of independent claims 21, 24, and 28, the Examiner has asserted that Col. 1, lines 34-36 of *Ouchi* discloses "an active region further comprising at least one quantum well comprised of InGaAsN and including AlGaAs barrier layers sandwiching said at least one quantum well." Office Action, page 3. However, the cited portion of *Ouchi* reads: "...a single quantum well laser in which a quantum well layer of In GaAsN ... and barrier layers of AlGaAs are formed on a GaAs substrate..." Although this language from *Ouchi* refers to a quantum well layer of InGaAsN and barrier layers of AlGaAs, that language does not disclose the arrangement required by the claims. Particularly, the cited passage of *Ouchi* does not teach "... barrier layers

sandwiching said at least one quantum well ...” as recited in independent claims 21, 24 and 28. (emphasis added). Thus, even if the references are combined in the purportedly obvious fashion, the resulting combination fails to include all the limitations of the rejected claims.

Furthermore, it is clear in any event that the Examiner has not established the existence of a motivation to make the purportedly obvious combination. Particularly, while the Examiner has suggested it would be obvious to modify the *Ouchi* device with the arrangement purportedly disclosed in *Sun*, it is not at all clear that there is any motive to make such a combination. For example, the Examiner asserts that the combination would be obvious in order to achieve the purported benefit “to provide carrier confinement and to produce photon emission and optical amplification within the VCSEL.” Office Action, Page 2.

However, *Ouchi* teaches “an undoped GaAs separate carrier and optical confinement heterostructure (SCH) layer 4.” Column 7, lines 20-21. Additionally, *Ouchi* also asserts that “Thereby, there can be obtained a laser structure as illustrated in FIG. 1 which has such a deep well structure that carriers would not readily overflow therefrom even if its temperature increases.” Column 7, lines 62-65 (emphasis added). Given these recitations from *Ouchi*, it is not evident that one of skill in the art would have any reason to modify the *Ouchi* device “to provide carrier confinement” as suggested by the Examiner.

Furthermore, the Examiner has not demonstrated that the *Ouchi* device lacks the capability “to produce photon emission and optical amplification within the VCSEL” to the extent that it would be obvious to modify the *Ouchi* device with the purported disclosure of *Sun*. Even assuming, strictly for the sake of argument, that the *Ouchi* device did lack some capability “to produce photon emission and optical amplification within the VCSEL,” the Examiner has not

established that inclusion of the *Sun* confinement layers in the *Ouchi* device in the purportedly obvious fashion would be an adequate remedy.

Applicant respectfully submits that in view of the foregoing discussion, the Examiner has failed to establish a prima facie case of obviousness with respect to the rejected claims, at least because the Examiner has not established that the purportedly obvious combination includes all the limitations of those claims, and because the Examiner has not established the existence of a motivation to make the purportedly obvious combination. Applicant thus respectfully submits that the rejection of claims 21-25 and 27-28 should be withdrawn.

**B. Rejection of Claim 26**

The Examiner has rejected claim 26 as being unpatentable over *Ouchi* in view of *Sun* and further in view of US 2003/0179792 to Riechert et al ("*Riechert*"). Applicant disagrees and submits that for at least the reasons set forth herein, the rejection should be withdrawn.

In his rejection of claims 26, the Examiner has asserted that "*Ouchi* and *Sun* disclose all limitation of the claim except for the InGaAsN barrier layers." However, as discussed above in Section II.A, the Examiner has not met his burden of demonstrating that *Ouchi* teaches the "barrier layers sandwiching said at least one quantum well" limitation as recited in independent claim 24, from which claim 26 depends. Therefore, Applicant respectfully submits that the rejection of claim 26 has been overcome and should be withdrawn.

**C. Rejection of Claims 29 and 32**

The Examiner has rejected claims 29 and 32 as being unpatentable over *Riechert* in view of *Sun*. Applicant disagrees and submits that for at least the reasons set forth herein, the rejection should be withdrawn.

In his rejection of claims 29 and 32, the Examiner has suggested it would be obvious to combine the disclosure of *Riechert* with the teachings of *Sun*. However, it is not at all clear that there is any motive to make such a combination. For example, the Examiner asserts that the combination would be obvious for the purported benefit “to provide carrier confinement and to produce photon emission and optical amplification within the VCSEL.” Office Action, page 3. However, the Examiner has not demonstrated that the *Riechert* device lacks the capability “to provide carrier confinement and to produce photon emission and optical amplification within the VCSEL” to the extent that it would be obvious to include the *Sun* confinement layers in that device. Even assuming, strictly for the sake of argument, that the *Riechert* device did lack some capability “to provide carrier confinement and to produce photon emission and optical amplification within the VCSEL,” the Examiner has not established that inclusion of the *Sun* confinement layers in the *Riechert* device would be an adequate remedy.

Applicant respectfully submits that in view of the foregoing discussion, the Examiner has failed to establish that one of skill in the art would be motivated to modify the *Riechert* device to include the *Sun* confinement layers. Therefore, Applicant respectfully submits that the rejection of claims 29 and 32 has been overcome and should be withdrawn.

### **III. Allowable Subject Matter**

Applicant acknowledges with thanks the indication of the Examiner that claims 2-3, 5-7, 9, 14-16, 18, 30, 33 and 34 are allowed, and Applicant also wishes to thank the Examiner for the careful review of those claims.

Applicant submits the following comments concerning the Examiner's statements of reasons for the indication of allowable subject matter in the Office Action. In general, Applicant agrees with the Examiner that the inventions to which claims 2-3, 5-7, 9, 14-16, 18, 30, 33 and 34 are directed are patentable over the cited references, but respectfully disagrees with the Examiner's statement of reasons for allowance as set forth in the Office Action.

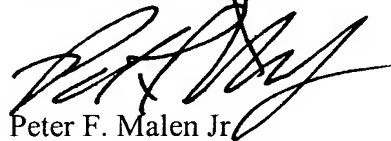
Particularly, Applicant submits that it is improper to characterize a single limitation, or subset of limitations, as constituting the basis for allowance of a claim. Rather, the patentability of a claim is properly determined with reference to the claim as a whole. Accordingly, Applicant does not concede that the reasons for allowable subject matter given by the Examiner are the only reasons that make, or would make, the claim allowable and Applicant does not make any admission or concession concerning the Examiner's statements in the Office Action concerning the allowability of claims 2-3, 5-7, 9, 14-16, 18, 30, 33 and 34 in view of the cited references.

**CONCLUSION**

In view of the remarks submitted herein, Applicant respectfully submits that each of the claims 2-3, 5-7, 9, 14-16, 18, 21-30 and 32-34 now pending in this application is in condition for allowance. Therefore, reconsideration of the rejections is requested and allowance of those claims is respectfully solicited. In the event that the Examiner finds any remaining impediment to a prompt allowance of this application that could be clarified in a telephonic interview, the Examiner is respectfully requested to initiate the same with the undersigned attorney.

Dated this 17<sup>th</sup> day of May, 2006.

Respectfully submitted,



Peter F. Malen Jr.  
Attorney for Applicant  
Registration No. 45,576  
**Customer No. 022913**  
Telephone: (801) 533-9800